NOMAD DENTAL™

MANUFACTURED BY ARIBEX

GETTING STARTED

This quick reference guide is intended to supplement the *User Manual* and operator training materials located on the *NOMAD Operator Training* CD.

NOTE: Manual and some training materials are also available for download on the Aribex website at www.aribex.com or they can be ordered in hard copy format: support@aribex.com

❶ Unwrap each component from the protective plastic and check for any noticeable signs of damage – do not use the device if it shows signs of damage.

The standard package system includes the following items.

- NOMAD Device with Backscatter Shield attached,
- 2 Charged Batteries,
- Battery Charger (the charger should be appropriate for local AC line voltage),
- Certificate of Conformance,
- Warranty Card, and
- NOMAD Operator Training CD.

❷ Verify that the serial number on the Warranty / Registration card matches the X-ray device serial number and the device serial number on the carrying case.

❸ Please complete the product Warranty / Registration card and mail it with proper postage to Aribex today. Completing the card fulfills a condition of warranty coverage.

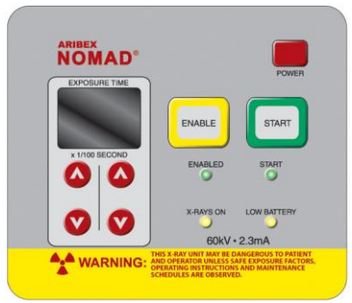
Review the User Manual and training material contained on the CD shipped with this device.

BASIC OPERATION

❶ Attach a fully charged battery (see *Battery Care*).

❷ Turn power on by pressing the **POWER** button.

❸ To change exposure settings press the increase or decrease buttons. (Example, **08** LED display setting = 0.08 seconds; **35** LED display setting = 0.35 seconds.)



For more on adjusting the time settings see the User Manual contained on the CD.

❹ Press and release **ENABLE** to ready the device.

❺ Position the NOMAD relative to the receptor.

❻ To begin the exposure, squeeze the handle trigger (or press and hold **START**) until the audible, signal ends, and green **START** and yellow **X-RAYS ON** indicators are off.

❼ Turn off the power by pressing the **POWER** button.

Do not operate NOMAD or battery charger if equipment was subjected to moisture.

Do not spray disinfectant or cleaners directly on the NOMAD or battery charger. Damage to your device or a shock hazard may result. Consult the User Manual on the CD for proper cleaning instructions.

Do not open the housings. Doing so will void the warranty. There are no user-serviceable parts inside the NOMAD or battery charger.

Locate the charging system away from the normal patient environment.

NOMAD should not be operated if it has been dropped or performance degrades; it should be returned to Aribex for a safety check.

BATTERY CARE

The following are important battery care notes:

- Each battery can go through the full (dis)charge cycle approximately 200 times. Routinely change out a discharged battery with fully charged one, as needed.
- A flashing, yellow **LOW BATTERY** indicator ☼ (control panel) and intermittent audible signal ⋹ indicate the need for a freshly charged battery.
- Charge only between +4°C (+39°F) and +40°C (+104°F). Recommended charging temperature is +24°C (+75°F).
- A battery can be left indefinitely in the plugged-in charger without damaging batteries. When the charging indicator stops flashing, leaving the battery in the charger for 8 hours helps to maintain optimum battery capacity (equalization).
- Battery charge will diminish during extended inactivity – **fully recharge handsets every 3 months during inactivity.** Never place a low charge battery into long-term storage.
- Do not store batteries in extreme conditions: below –20°C (–4°F) or above +40°C (+104°F), or beyond 95% relative humidity (non-condensing). The optimal storage location is cool, dry, and away from direct sunlight.
- Do not store or carry batteries so that battery terminals can be damaged or exposed to contact with conductive objects.
- Always unplug the charger from the power supply when it is not in use. For additional info, specifically about the charger, see the accompanying instruction manual for the battery charger.

Do not attempt to charge damaged batteries. When the battery charger senses a bad battery, it is spent and must be taken out of service.

Do not use batteries from other sources.

Properly dispose of spent or damaged batteries; return to Aribex or an authorized distributor for replacement and recycling. Do not place in municipal waste stream.

LIMITED WARRANTY

COVERAGE. Aribex, Inc. warrants its medical and dental x-ray equipment to be free from any defects in material or workmanship for a period of one (1) year from the date of purchase. Aribex, Inc. also warrants any accessories purchased from Aribex to be free from any defects in material or workmanship for the period of one (1) year from the date of purchase.

The liability of Aribex, Inc. is limited to repair or replacement of any parts that Aribex or its authorized resellers determine to be defective. Contact Aribex for a Return Material Authorization (RMA) number and shipping instructions. Parts proving defective shall be repaired or replaced free of charge (labor and domestic shipping included), if defective equipment is returned freight collect to Aribex (Utah, USA) or the location of the authorized service center. Equipment repaired or replaced under warranty shall continue to be warranted for the balance of the original warranty term. All warranty claims must be made not later than ten (10) business days following the expiration of the applicable warranty period.

LIMITATIONS OF COVERAGE. This warranty does not apply to equipment that is or has been abused, misused, or altered (including opening enclosure or tampering), improperly maintained, subjected to use beyond rated conditions, or damaged as a result of any carelessness or accidents. This warranty does not cover ordinary wear and tear or maintenance.

LIMITATIONS OF LIABILITY. Aribex, Inc. makes no other warranty, either expressed or implied, with respect to any equipment purchased from Aribex, including without limitation any implied warranties of merchantability or fitness for a particular purpose, whether or not Aribex may have been informed of the actual uses to which any of such equipment may be put. Aribex, Inc. shall not under any circumstance be liable for incidental, indirect, consequential, punitive or exemplary damages, including without limitation damages for delay or lost profits, and in no event shall liability of Aribex arising from the purchase, sale or use of the equipment, or breach of any warranty made above, exceed in the aggregate the purchase price paid therefore.

CE
0473
ISO 13485 / ISO 9001
CERTIFIED COMPANY

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U.S. patents 7,224,769 and 7,496,178
United States and international patents pending
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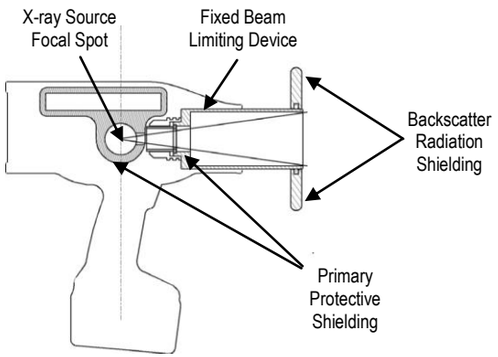
MP-0113-A

THE NOMAD® DIFFERENCE

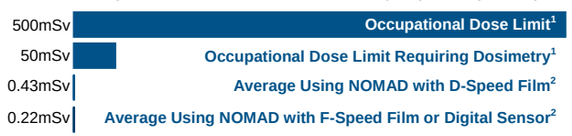
NOMAD is safe to be used as a handheld X-ray source. There is no need to leave the room during an exposure.

Aside from the direct beam, X-ray devices have two potential operator radiation sources: 1) leakage radiation and 2) backscatter radiation bouncing back off the subject.

1) **Leakage** – Unique internal shielding of NOMAD encases the X-ray tube eliminating leakage radiation. As demonstrated by the data below, this makes it safe to use NOMAD as a handheld device during exposures.



Comparative Data for Hand and Extremity Exposure (Annual)

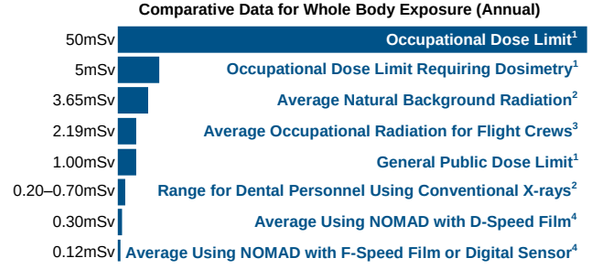


1) Standards for Protection against Radiation, 10 CFR 20 (US Federal Standards), 1994 (see also *NCRP Report No. 116*)

2) "Radiation Exposure with the NOMAD Portable X-ray System", Goren AD et al, Dentomaxillofacial Radiology, 37 (2008), S. 109-12; normalized average (includes leakage and backscatter radiation) assumes 7,200 exposures per year, and the average length of exposure for D-speed = 0.50 seconds, F-speed = 0.25 seconds, digital sensor = 0.20 seconds

2) **Backscatter** – When properly oriented, the transparent shield on NOMAD collimator acts as a barrier against backscatter radiation, making it safe for the operator to stay in the room.

Comparative Data for Whole Body Exposure (Annual)



1) Standards for Protection against Radiation, 10 CFR 20 (US Federal Standards), 1994 (see also *NCRP Report No. 116*)

2) *NCRP Report No. 145* (National Council on Radiation Protection and Measurements), p7-9

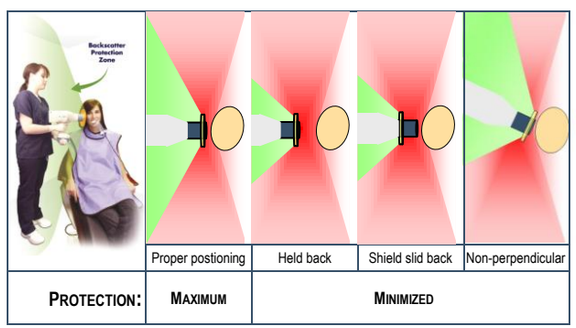
3) "Estimated Cosmic Radiation Doses for Flight Personnel", Feng YJ et al, *Space Medicine and Medical Engineering*, 15(4) 2002, p265-9

4) Normalized average assumes 7,200 exposures per year, and the average length of exposure for D-speed = 0.50 seconds, F-speed = 0.25 seconds, digital sensor = 0.20 seconds

As a result of the internal and backscatter shielding, operator X-ray exposure is far below federal regulatory limits.

RADIATION SAFETY

- Operators must follow all applicable regulatory guidelines and in-house radiation protection program in regard to patients and operators who are pregnant or expect to become pregnant.
- Operators must be fully acquainted with industry safety recommendations and established maximum permissible doses.
- Do not enable NOMAD until patient and operator are positioned and ready for the exposure, preventing interruption and inadvertent exposure of anyone to X-rays.
- Do not attempt an exposure if anyone other than patient is in the direct beam. If others are assisting, then they should wear protective covering.
- When selecting and using Position Indicating Devices (PIDs), preference should be given to models that allow the backscatter shield to remain at the outer end of the collimator cone for maximum operator protection.
- An exposure can be terminated for any reason by abruptly releasing the depressed trigger.
- Optimal operator radiation backscatter protection exists when:
  a) The backscatter shield is positioned at the outer end of the collimator cone.
  b) The backscatter shield is close to the patient.
  c) The patient tilts their head when needed to accommodate exposures.
  d) The operator remains within the significant zone of occupancy immediately behind the device shield.
- As shown in graphic representations, maximum protection (green area) from backscatter radiation (red area) exists when the NOMAD is positioned near the patient, is perpendicular to the operator with the patient (oval) positioned/tilted as needed, and the backscatter shield is fully extended toward the patient.



- Operation outside the protection zone (or with a diminished protective zone) requires proper precautions such as the use of lead aprons.

ALARMS AND ALERTS

Alert	Function / Resolution
Green **ENABLED** indicator flashes	System Readiness: Activates when **ENABLE** is pressed/ released; ends automatically after 30 seconds or when an exposure starts (trigger is depressed or **START** is pressed).
Slow series of short, double beeps	
Green **START** and yellow **X-RAYS ON** indicators illuminate	X-ray Exposure: At the end of the successful exposure, audible signal and indicators stop.
Continuous tone (for the duration of the timed exposure)	
Green **START** and yellow **X-RAYS ON** indicators flash	Incomplete Exposure: Activates if trigger is released before the timed x-ray exposure finishes and ends automatically after 15 seconds or if power is manually turned off/on.
Series of long beeps	
LED display turns off	System Alert, followed by a system shutdown: X-ray emissions are not detected during timed exposure but the battery is OK.
Two short beeps	
Yellow **LOW BATTERY** indicator flashes	Low Battery: Replace the battery and reset exposure time.
Slow series of short beeps	
Alarm	**Function / Resolution**
LED display begins flashing	Overheating: Operation suspends if the device overheats; after cooling for approximately 5 minutes (or longer depending upon room temperature), power on.
Series of long beeps	